

distance. If the slope is too little, solids will not be carried away by the flow and the line will become plugged. If the slope is too great, the flow may be so fast a siphonic action may be started which will cause traps to go dangerously dry.

Plumbing systems in public buildings are required to have stop valves on many fixtures. This permits repair of the fixture without cutting off the whole building's water. In houses, however, only water closets must have stop valves.

The Code also calls for means of draining supply lines leading to outside faucets. This is done with a stop-and-waste valve. Be sure the small knurled stop cock is mounted on the outside faucet side, not the supply side of the line. Otherwise the stop-and-waste valve will be useless.

## TERMINOLOGY

Here are a few common plumbing terms that will help you and your plumber to communicate.

Pipes that bring water into your building are supply lines. Those that take it out again are drainage lines. In the average modern house with its automatic washing machines, multiple bathrooms and garden sprayers these pipes must carry 200 gallons of water in and out each day. This load is a dramatic indication of the importance of a well installed system.

The service pipe is the one bringing the supply in from outside, probably underground. Vertical drainage lines are called stacks. Those that run horizontally are branches. Pipes which discharge from toilets are called soil lines. Those receiving discharge from other fixtures are called waste lines. Vent lines are pipes which extend up and above the roof. They equalize the pressure in the system, allowing rapid drainage without gurgling. The vents also protect the water seal in the traps.

## WHAT TO DO IF SUSPICIOUS

If the materials or workmanship in your new plumbing installation do not appear satisfactory, call in your local plumbing inspector. If yours is one of the many communities in Ontario without a qualified inspector of plumbing, take the matter up promptly with your elected officials. It takes a highly trained professional to know for certain whether or not your plumbing is adequate.

If you have a qualified inspector, depend on him. If you haven't, urge that your community get one. A qualified plumbing inspector is, in every sense, a protector of your pocketbook, your health, and perhaps your life.

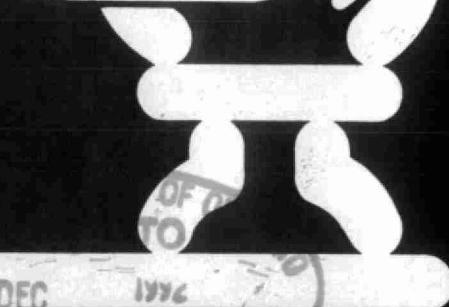
Environment, Sanitary Engineering Branch

# What you should know about Ontario's plumbing regulations...

## HOW YOU CAN TELL WHETHER YOUR PLUMBING IS UP TO PAR, AND WHAT YOU CAN DO IF IT ISN'T.

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# BAD PLUMBING CAN AFFECT YOUR HEALTH AND POCKETBOOK

Modern plumbing is one of the great conveniences of the present-day home. A complicated network of pipes and valves brings fresh water to our sinks, tubs, and toilets, and flushes away wastes at the turn of a valve or pull of a lever.

It's almost effortless, and perhaps that's why most people take good plumbing for granted. However, when plumbing malfunctions, whether as a result of poor installation or for any other reason, the result is at best annoyance, inconvenience, and expense. At worst the result can be sickness—perhaps even death.

Most plumbing installed in Ontario is satisfactory, primarily because the majority of the province's plumbers have now been examined by the Ministry of Colleges and Universities' Industrial Training Branch, and certified as competent. Strict Plumbing Regulations have been issued by the Ministry of the Environment. They apply to the areas of Ontario with municipal organization. But, while many municipalities enforce these regulations to ensure sound plumbing installation, there are still many others who do not.

Approximately fifteen per cent of the population of Ontario is unprotected by the Ontario Plumbing Code, because their local council has not retained the necessary inspection staff. This means that there are still many buildings being constructed with no certainty that the plumbing system will be adequate, or that the plumbers will fulfil their contracts.

If you are planning to change your present plumbing or to enter into an agreement with a plumbing contractor, be sure that the contract bears a clause to the effect that plumbing shall be installed in accordance with Regulation 647, or the Ontario Plumbing Code.

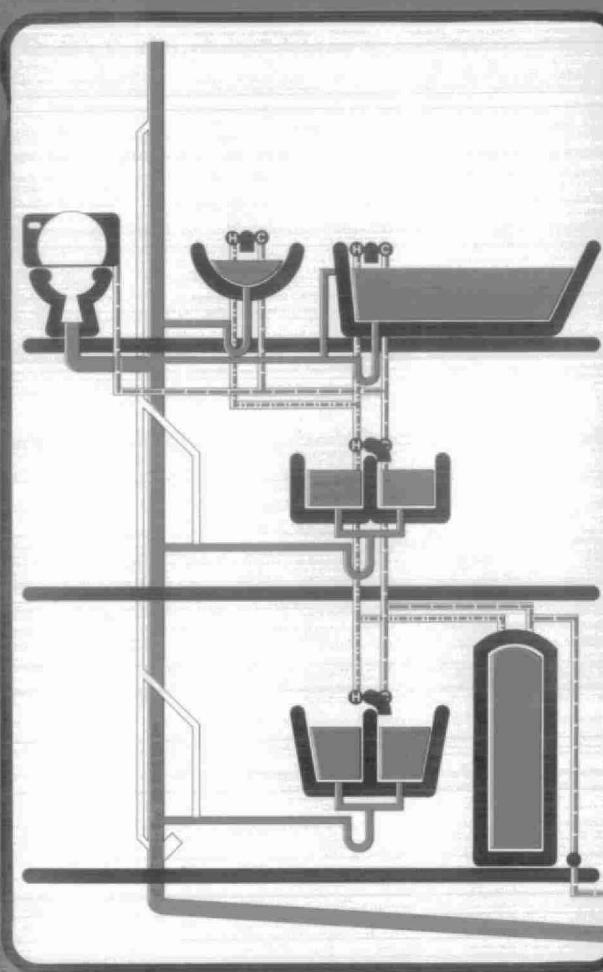
As plumbing inspection is a municipal responsibility, citizens are urged to encourage their elected officials to protect the health and welfare of their communities by hiring qualified inspectors to enforce the Plumbing Code.

Though poor plumbing is by no means abundant in Ontario, remember that even slight inefficiencies can be expensive and dangerous.

Installation of the wrong grade of material can cause costly, premature breakdown. Use of the wrong diameter of pipe or the wrong slope can result in inadequate pressure or improper drainage. Faulty trapping or venting can result in exasperating gurglings. These errors can also result in a building filled with odors that are unpleasant and even sickening.

A fault known as cross connection is perhaps the most dangerous. Through an upset in hydraulics, water meant to flow one way begins flowing another. When this happens between sewage and drinking water lines the result can be typhoid, dysentery, cholera, even polio.

Good plumbing is more than a matter of cost and comfort. It is a matter of health.



Key:



Ventpipe

Drain pipe

Hot water

Cold water

## WHAT TO LOOK FOR

The average home plumbing system is made up of three parts: the water supply, the fixtures, and the drainage system. Its purpose is to provide a ready supply of safe water for human consumption, and for cleanliness and comfort. Its further purpose is to remove sewage and waste efficiently and rapidly, to prevent these from constituting a danger to health.

Should it fail to do these things with maximum effectiveness and minimum expense initially, and continually for a number of years, chances are there have been errors in installation. Plumbing appears simple, but is complicated by the hydraulics involved. It is on these laws that the Plumbing Code is based. While laymen cannot be expected to grapple with the details of the Code, which runs to 175 sections and many more subsections, there are certain basic things anyone can look for.

When having a building constructed in an area where there is no plumbing inspection it is well to examine the plumbing as soon as it is installed, and before the partitions which will hide it are put in place.

The water service line is the underground pipe that brings water into the building from municipal mains in the street or from whatever supply is used. This pipe may be of brass, iron, steel, or polyethylene, but nowadays is usually copper. When copper, it is required to be Type K copper, which means it has adequate wall thickness to withstand the weight of earth piled on it. Type K copper is color-coded with a green stripe or marked Type K.

Inside supply lines are now also usually of copper and must be of a minimum Type M copper piping, which carries a red stripe. Drain pipes that carry waste away from sinks, toilets and tubs can be of brass, iron, steel, copper or, quite acceptably, of plastic which is Canadian Standards Association approved for the intended purpose.

These drainage pipes should be of the DWV type. This same type is used for the vent pipes that prevent gurgling in the drains and also carry sewage gases away from the building's interior.

Even the best materials can be badly installed. Improper venting of drainage lines is a common fault. There should be a vent pipe rising from a horizontal drainage line within a maximum of five feet from each trap. If this isn't done, the weight of waste water that builds up in the line can be enough to pull the water out of the trap. The water that is supposed to always remain in the U-shaped trap, which must be present at every fixture drain, is your protection against the back-up of sewer gases from the entire sewage disposal system.

The one and a half inch depth of water contained in the traps is vital to your health and comfort. It is all that is between you and a mass of bad odors.

Drainage pipes must also slope toward the outlet point at a rate of one quarter inch of slope for each foot of